# Market Ancillary Service Specification Consultation - May 2022

# Submission to Issues paper template

This template has been developed to assist Consulted Persons in providing submissions on the questions posed in the Issues Paper. AEMO encourages Consulted Persons to use this template to assist AEMO when considering the views expressed on each issue.

Consulted Persons should feel free to address only those questions that are of particular interest/concern to them and delete those they are not responding to.

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| Organisation:  |  |
| Contact name: |  |
| Contact title: |  |
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| 1 Background |
| 1.4 Industry advice |
| Question 1: | Are there any further issues for investigation by the Consultative Forum that are relevant to the specification of Very Fast FCAS? |
| Response:[For Consulted Person - insert text of response] |
| 3 Capability of different technologies to deliver Very Fast FCAS |
| Question 2: | Do you agree with the capabilities expressed in Table 3? If not, please advise which of these you do not agree with and provide evidence to support alternative capabilities. |
| Response: |
| Question 3: | Are there any technologies not mentioned in Table 3 that could potentially provide Very Fast FCAS? If so, what characteristics (including response time) could be expected of them? Please provide evidence to support their capabilities. |
| Response: |
| Question 4: | How could wind farm and solar farm operators be incentivised to participate in the Very Fast FCAS markets? What are the technical barriers impeding participation? For example, this may be a conflict of voltage disturbance controls with frequency response controls. |
| Response: |
| Question 5: | Are there any other issues relevant to the capability to provide Very Fast FCAS by different technologies that AEMO should consider? |
| Response: |
| 4 Proposed design of Very Fast FCAS markets  |
| 4.2 Guidance from other FFR Markets |
| Question 6: | Are there any specific useful lessons to be learned from other FFR markets around the world? |
| Response: |
| 4.3 Proposed design of Very Fast FCAS markets |
| 4.3.2 AEMO’s proposed high level market design |
| Question 7: | Are there any issues with the concept of shifting Fast FCAS to accommodate a similar, but faster, Very Fast FCAS? Is there a better alternative that is compatible with the Amending Rule? |
| Response: |
| Question 8: | Are there any other issues relevant to market design that AEMO should consider? |
| Response: |
| 4.3.3 Impact of inertia |
| Question 9: | Are there any other issues relevant to the impact of inertia that AEMO should consider? |
| Response: |
| 4.3.4 Primary Frequency Response |
| Question 10: | Are there any other issues relevant to the interaction between Very Fast FCAS and PFR that AEMO should consider? |
| Response: |
| 4.4 Existing capability to deliver Very Fast FCAS |
| Question 11: | Does a 1-second response time specification automatically exclude certain technologies from being able to participate in the Very Fast FCAS markets? Which ones and why? |
| Response: |
| Question 12: | Is there anything else AEMO should consider in maximising the pool of potential Very Fast FCAS? |
| Response: |
| 5 Specification of Very Fast FCAS and associated changes to the MASS |
| 5.2 Proposed key parameters for Very Fast FCAS |
| 5.2.1 Response time, timeframe and initiation delay |
| Question 13: | Will some technology types be locked out of the Very Fast FCAS markets if the maximum response time is specified as 0.5 seconds rather than 1 second? |
| Response: |
| Question 14: | Are there benefits to setting the response time for Very Fast FCAS faster than 1 second that AEMO should consider? |
| Response: |
| Question 15: | Are there any other issues relevant to the proposed response time and timeframe that AEMO should consider? |
| Response: |
| 5.2.2 Market ancillary service offer requirements |
| Question 16: | Are there any other issues relevant to the proposed market ancillary service offer requirements that AEMO should consider? |
| Response: |
| 5.2.3 Reference frequency levels |
| Question 17: | Are there any other issues or concerns relevant to AEMO’s proposal to apply the current definitions of ‘Raise Reference Frequency’ and ‘Lower Reference Frequency’ to Very Fast FCAS? |
| Response: |
| 5.2.4 Frequency Ramp Rate |
| Question 18: | Are there any other issues relevant to RoCoF that AEMO should consider? |
| Response: |
| 5.3 Control system requirements |
| Question 19: | Is AEMO’s proposal to permit the use of a ‘combination’ controller, namely, a hybrid of proportional and switched controls for Very Fast FCAS appropriate? Please provide reasons for your response. |
| Response: |
| Question 20: | Are there any other issues relevant to the proposed control system requirements for a combined FCAS controller that AEMO should consider? |
| Response: |
| Question 21: | Are there other FCAS delivery methods that AEMO should consider allowing for Very Fast FCAS? |
| Response: |
| 5.4 Verification and measurement requirements |
| 5.4.3 Frequency measurements |
| Question 22: | What is the error margin and resolution for frequency measurements by high-speed metering installed by Fast FCAS Providers that could be retrofitted to existing Ancillary Service Facilities for participation in Very Fast FCAS markets? |
| Response: |
| Question 23: | What is the error margin and resolution for frequency measurements by high-speed metering that is not currently in use in the NEM, but is available for use in the Very Fast FCAS markets? |
| Response: |
| Question 24: | What is the cost of high-speed metering that captures frequency measurements with a margin of error lower than <0.1 Hz? |
| Response: |
| Question 25: | Can metering providers submit the specifications of their high-speed metering currently available, or in use by Fast FCAS providers? |
| Response: |
| Question 26: | Are measurement rates of <100ms feasible for your technology? What is the nature and extent of changes that would need to be made to support rates of <100ms? |
| Response: |
| Question 27: | Are there any other issues relevant to the proposed verification and measurement requirements that AEMO should consider? |
| Response: |
| 5.5 Overload capacity |
| Question 28: | How long can overload capacity be sustained? |
| Response: |
| Question 29: | What percentage of a generating unit’s nameplate rating is equivalent to the overload capacity? |
| Response: |
| Question 30: | How often can overload capacity be triggered in a 5-minute trading interval? |
| Response: |
| Question 31: | Can overload capacity be delivered proportionally to the frequency deviation, or can it only be delivered by a step change in active power? |
| Response: |
| Question 32: | Is there an energy payback after overload capacity is delivered? |
| Response: |
| Question 33: | What technologies other than BESS have overload capacity that be sustained for at least 6 seconds? |
| Response: |
| Question 34: | Are there any other issues relevant to the potential use of overload capacity for Very Fast FCAS that AEMO should consider? |
| Response: |
| 5.6 Changes to other FCAS |
| 5.6.1 Interaction between Very Fast FCAS and Fast FCAS |
| Question 35: | Can Consulted Persons identify any case where a decrease in Fast FCAS capability could be observed? |
| Response: |
| Question 36: | Are there any other issues relevant to the interaction between Very Fast FCAS and Fast FCAS that AEMO should consider? |
| Response: |
| 5.6.2 Interaction between Very Fast FCAS and Slow FCAS and Delayed FCAS |
| Question 37: | Are there any issues relevant to the interaction between Very Fast FCAS and Slow FCAS and Delayed FCAS that AEMO should consider? |
| Response: |
| 5.6.3 Interaction between Very Fast FCAS and Regulation FCAS |
| Question 38: | Are there any issues relevant to the interaction between Regulation FCAS and Very Fast FCAS that AEMO should consider? |
| Response: |
| 5.6.4 Revision to FCAS measurement |
| Question 39: | Are there alternatives to capping the registered Very Fast FCAS capacity to the actual peak active power change to minimise the discrepancy between the amount of FCAS enabled and the actual contingency size? |
| Response: |
| Question 40: | Are there any other issues relevant to the proposed market ancillary service offer requirements that AEMO should consider? |
| Response: |
| 5.7 Proposed handling of Contingency Event Time |
| Question 41: | Are there any other issues relevant to the proposed removal of Contingency Event Time that AEMO should consider? |
| Response: |
| Question 42: | In there a better alternative to the baseline compensation approach than the one proposed by AEMO? Please provide reasons for your response. |
| Response: |
| 6 Issues not under consideration |
| 6.4 Geographic diversity |
| Question 43: | Are there any other issues relevant to geographic diversity that AEMO should consider? |
| Response: |